4-2014

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Recommended Citation

Fibbens, M., Mak, M. Y., & Williams, A. P. (2014). Assessing compensation for landholders affected by coal seam gas occupation. *Pacific Rim Property Research Journal, 20*(2), 161-170. doi: 10.1080/14445921.2014.11104393

ASSESSING COMPENSATION FOR LANDHOLDERS AFFECTED BY COAL SEAM GAS OCCUPATION

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ABSTRACT

Valuation theory in Australia has long established principles relating to compensation for the acquisition of part of property. However, the theory relating to assessing compensation for coal seam gas (CSG) occupation is relatively undeveloped and CSG activity in New South Wales (NSW) takes place in an environment where some confusion surrounds the subject of the assessment of landholder compensation.

This paper applies a comparative study of the compensation assessment practices of courts in NSW, Queensland and Alberta. The research, reported in this paper, documents a trail of judicial decisions supporting the use of "piecemeal" and "before and after" approaches where mining infrastructure occupies part of property. A comparison of the valuation techniques identified in this study with the harms described by Fibbens et al 2013 indicates the "piecemeal" and "before and after" valuation approaches have greater utility in addressing losses to the balance land than the so called common industry practices used in NSW which ignore effects on the balance land.

Keywords: coal seam gas (CSG), compensation, valuation methods, piecemeal, before and after

INTRODUCTION

Coal seam gas is a new land use which requires the entry of gas operators onto land (which may be in private ownership). The legislation of NSW empowers gas operators to be on land for the purposes of exploration and production and provides for compensation for this access. In NSW, the judgement in *Halfpenny Investments Pty Ltd V Sydney Gas Operations 2003/44* "compensated" the landholder for the occupation of a medium sized rural holding by ten coal seam gas wells and accompanying access tracks. The award comprised $2,333.33 upfront plus $3,283.60 per annum and an allowance of $24.04 per annum for the extra land taken up for annual maintenance of wells. The judgement (page 20) also referred to "*the common practice within the industry...* where *...a sum is agreed generally for the type of individual wells which are drilled and furthermore for the roadways which would be used by the mining companies"*. The combination of an apparently ungenerous compensation award with the declaration of the existence of a separate theory for compensating occupation of land by gas projects provides inducement for an investigation into the compensation approaches that are applicable to CSG.

This study builds on the research done in Australia to date. Legislative provisions for compensation for mining and gas projects across Australia are addressed in the comparative study by White (1999) and Scarr (2004) examined the head of injurious affection (and noted the comparatively tenuous provisions for this in the NSW Petroleum (Onshore) Act 1991). Notwithstanding Scarr's reservations about the legislative provisions, the NSW Draft Code of Practice (2012) claims "*Compensation should be paid to offset the inconvenience, noise, and deprivation of part of their land as a result of CSG exploration".* The access rights, CSG infrastructure and processes and

potentials for harm to landholders are examined in Fibbens et al (2013), Fibbens and Mak (2013), and Fibbens et al (2014).

In view of the pronouncement in Halfpenny (2003), this research asks "*what methods of valuation are applicable to the valuation of compensation for occupation by CSG projects?*"

METHODOLOGY

Document research (described by Cresswell and Clark, 2007 and Flick 2009 and used in the mining compensation related works of White, 1999 and Scarr, 2004) is applied to key mining judgments from the gas producing states of NSW, Queensland and the Canadian province of Alberta (where there is a long established oil and gas industry). Document research facilitates the assembly of a trail of judgements that outline the methods of valuation for the partial occupation of land by wellheads and other mining infrastructure.

Comparative techniques (Yin, 2009 and Flick 2009) are used to evaluate the efficacy of the methods of valuation in terms of their ability to redress the various harms identified by the literature (as being applicable to the occupation of land by CSG infrastructure (Table 5 below)).

In the context of this paper "disturbance" is an uncontentious item, as the assessment of disturbance costs entails identification and costing of relevant items. This paper confines itself to the methods applicable to the assessment of the land occupied by CSG infrastructure and loss in value to the balance land.

The Harms

Fibbens et al (2013) identified the harms from an investigation of the literature and remote sensing as outlined in Table 1.

Item	Classification in valuation theory
Occupation of well sites, hardstand, roads and buried line.	Value of land occupied.
Disruption to remaining land due to taking (occupation) of part.	Severance.
Disruption to remainder caused by extractive and maintenance processes carried out on the land.	Injurious affection.
Costs reasonably resulting from occupation (legal and other fees plus damage to property).	Disturbance costs.

Potential Harms Inflicted by CSG Occupation
Source: Adapted from Fibbens et al, 2013
Table 1

In theory, the role of compensation is *"... that, so far as money can do it, the landholders are placed in the same position as if the mining claim was not granted (Messer & Messer v Rossi & Others [2001] QLRT 6 2).* In practice, lists of harms such as those documented in Table 1 are frequently used as a foundation for the traditional "*piecemeal*" (or summation) approach to valuation where dollar amounts are assigned to the various heads of compensation (see *Zimmerebner v Hawkins and Anor, 1999 20 QLCR 71*).

The question is, do the existing valuation approaches for CSG occupation achieve this?

Existing Methods in NSW

The *common practice* referred to in *Halfpenny* awards compensation according to attributes of the work (area of wells and roads). Perusal of the cases indicates that, in NSW, current valuation approaches in the Mining Warden's jurisdiction (including mining and gas matters) can be divided into the following classes:

- allowance for nuisance during temporary occupation for exploration (as for the formula approach in *Electricity Commission of NSW v Reynolds, NSW Mining Warden 1978);*
- calculating compensation based upon lost carrying capacity (as in *Moolarben Coal Mines Pty Ltd and ors v Ulan Coal*, NSW, 2008, 26);
- basing compensation on the area of land occupied (a summation approach) (as in *Halfpenny* and *Morgan Mining and Industrial Group Pty Ltd v Norris, Wardens Court 1977).*

"Formula" Approaches

Compensation for exploration in NSW often makes allowances for nuisance during occupation for exploration (which can be brief). *Electricity Commission, 1978* (a transitory occupation of a property of some 4,600 ha in the Hunter Valley) provided an allowance for occupation of land per drill hole per week and added allowances for access, vehicle movements and supervision. *Australian Gaslight Company v O'Grady & Burrell* NSW 1986 (a case under the former legislation, the NSW Petroleum Act 1955) adopted a similar "formula" approach. Table 2 summarises the award.

People	18	$1	$18.00
Vehicles	15	$4	$60.00
Per day			$78.00
Total Nuisance	55 days		**$4,290.00**
Supervision			**$ 550.00**
Total award			**$ 4,840.00**

Australian Gaslight Compensation for Single Exploration Well via "Formula" Approach
Source: Authors
Table 2

In striking a dollar rate per person and vehicle, the formula approach in *Australian Gaslight* allowed for the nuisance of occupation only (in reality a form of temporary injurious affection) for the single exploration well, but apparently omitted the allowance for temporary occupation of land identified in *Electricity Commission (1978).* This approach recognised the potential for nuisance during drilling, but in doing this used estimates of visits and placed a dollar value on the two classes (people and vehicles). There is no indication as to the basis for the dollar rates ascribed.

Carrying Capacity

Loss of carrying capacity was used in *Moolarben Coal Mines & Ors v Ulan Mines 2008/16:* by finding the net present value (NPV) of lost agistment income based upon grazing capacity and using a value per dry sheep equivalent (DSE) in the assessment of value of a 21-year lease. However, this approach departed from the traditional form of the carrying capacity approach described by *"Riverina*" (1939) who reported that DSE values should be extracted from property sale prices (agistment fees are not tied to the market for land and can fluctuate considerably). Although lost

carrying capacity can be one element of compensation, it is unlikely to have application in areas of higher land values (for example where the "residential" component is important as in the closely settled Camden – Menangle area described in NSW Land and Property Information 2014).

Moreover, Jacobs (2010, 654) noted the propensity of productivity approaches to produce error and the preference of courts for valuations based upon the sales comparison approach per hectare. Notwithstanding this, income approaches may have application in situations where occupation causes significant losses in production.

The Summation Approach in Halfpenny

In *Newbridge Slate Pty Ltd v Dapila Mining Ltd* NSW Mining Warden, 1997, approximately five hectares (in three separate areas) was taken from an area of 133 hectares for the purposes of a mining lease. Full freehold value was allowed for the land occupied (the mine life was estimated at 230 years). Although severance had taken place (through acquisition of land in three parts), compensation was not awarded for this. Instead, the court based compensation on a capital value of $2,000 per hectare for land occupied.

The approach taken in *Newbridge Slate (1997)* was applied in the *Halfpenny* case (which used a rate per square metre of $2.50 for land occupied to ascertain the value of the land occupied and converted to a rent value of $0.20 per square metre per annum)**.** In applying a dollar rate per square metre, the court used a form of "summation" to assess the value of land occupied. Essentially, this is the first step of the piecemeal approach depicted in Table 4 (and can be extended to allow for loss in value to the balance land and disturbance costs). However, no allowance was made for these items in *Halfpenny.*

Rules of Thumb

"Rules of thumb" (which are possibly attractive because they simplify calculation workloads) have sometimes been used to assess compensation for partial occupation. Herps (1969) reported the use of one third of bare land value for pipelines through rural land and Jackson (2008) cited the use of 50% of bare land value for sewer lines and 80% for pipelines. The approach finds support in literature from the USA (Lang and Smith, 1998); however, rules of thumb have long been the subject of criticism (Maloney, 1971). Limitations were recognised by Larmer (2000) who indicated that a 50% rule for buried pipeline can have application, but indicated that it is sometimes inadequate due to the location of improvements, horticultural land uses and development potential.

In CSG compensation, rules of thumb take the form of dollar rates per square metre of land occupied or per well. NSW Legislative Council (2012) reported compensation schemes for CSG occupation including Santos at $5,000 for non-permanent works and (at page 150) "if *it is a pilot well that remains on the property the landholder receives between approximately $1,500 - $3,000 per well per annum"* and (at page 150) that AGL: "*currently pays on average a $3,000 to $5,000 one off payment for short-term exploration wells.* The *total average annual compensation paid for production wells to June 2011 was $2,382 per well".* Rates per well are apparently increasing. Kelly (2012) reported an upfront payment of $17,000 plus and $4,000 per annum. Santos have announced a revised scheme that pays "*120% of the value of the land occupied"* for the first year and "*60%"* ongoing (Macdonald-Smith, 2012).

The problem with "rules of thumb" is that (by restricting themselves to calculations based upon the works) they disregard impacts on the remaining property (the balance land). Interestingly, in *Alcorn & Ors v Coal Mines of Australia Pty Ltd, 2009, 88,* the court cited the history of the use of a value per drill hole and reported this dated back to 1974. The court thought rates per well were derived from estimates of the value of surface lands *"relating that back to the number of drill holes*

intended upon the property". The rationale for this was proposed as *"a mining company does not know, at the time of a court hearing, the exact number of drill holes it will require to make*". The *common industry practice* of using a rate per drill hole may originate in expediency.

Alternative Valuation Approaches

The Canadian province of Alberta has a long history of oil and gas well occupations. Albertan compensation practice uses an approach based on analysis of transactions between gas operators and farmers (which has some similarity to the direct comparison method used in Australia). In Alberta the "*pattern of dealings"* approach is based on contracts made in the open market between landholders and operators (information apparently not being constrained by confidentiality clauses as in NSW) and rates per "acre" are derived from transactions. Barton (1988) indicated the approach is based on the premise "*that owners and operators negotiate many wellsite leases and right of way agreements, and when they agree on compensation they must be taken to be able to judge in their own interests what the proper figures are".* However, the property and the work must be comparable (*Canadian Natural Resources Ltd. v. V Babb and Ors. SRB 2013, 7).*

The Albertan "*four heads*" method of assessing compensation provides an alternative. It allocates compensation to the following (Barton, 1988):

a. land occupied;
b. the nuisances caused by establishment of works;
c. loss of the land occupied; and
d. adverse effects of the ongoing operation.

Item b (compensation for nuisances during establishment) recognises the extent of nuisance during the establishment phase and item c affords compensation for a form of severance. In Alberta, the "pattern of dealings" has been used to inform parts of the "four heads" approach (for example compensation for loss of land occupied). The *four heads* approach is clearly a form of *piecemeal* valuation.

Interestingly, a third approach (the "global approach") is reported by Barton (idem) as "*..."global" approach emphasizes that it is important to consider the overall effect of the entry without breaking compensation down into different categories".*

The global approach seeks the dollar adjustment hypothetically prudent purchasers would make for the occupation (see *Zimmerebner* above), and, in Australia, this is often derived by applying the *before and after* approach (which is exemplified in the Queensland case *of Wills v Minerva Coal Pty Ltd QLC/1998/149, 66)* as shown in Table 3.

Value before acquisition	$1,990,000
Value after acquisition	$1,095,000
Difference	$ 895,000

Before and After Approach in *Wills v Minerva Coal (1998)*
Source: Authors
Table 3

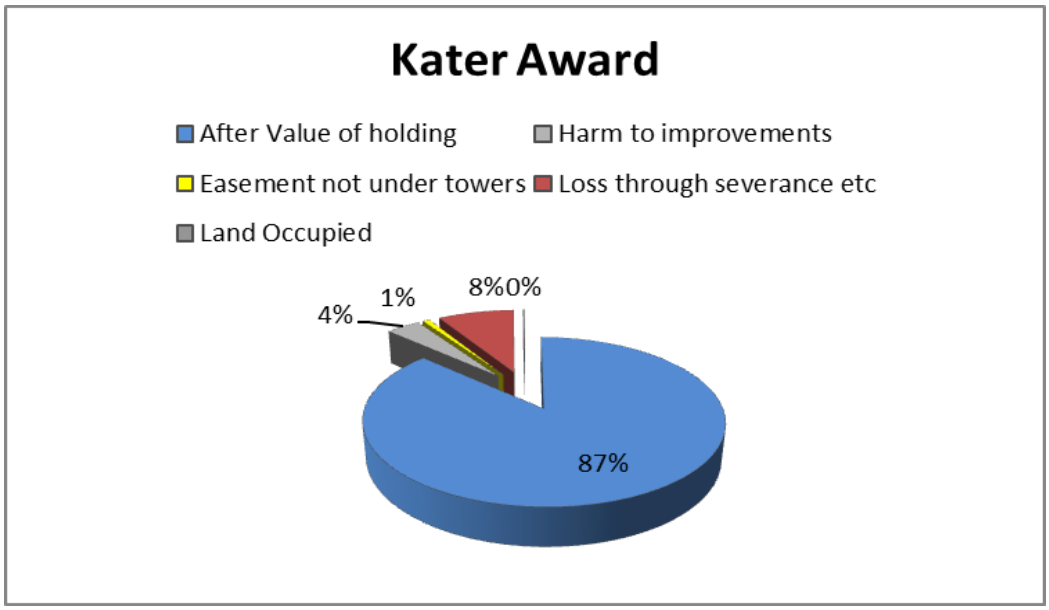
Both *piecemeal* and *before and after* approaches (being methods of valuation that deal directly with compensation for partial occupation) have potential for application to CSG. The *"piecemeal"* approach allocates compensation amounts to lists of compensation harms. In *Kater v The*

Electricity Transmission Authority of New South Wales NSWLEC 1993, 18 the piecemeal compensation award was as shown in Table 4.

Capital value	**$3,600,000**	**Percentage of Capital Value**
Injurious affection to improvements	$134,500	3.74%
Loss of land under towers	$8,400	0.77%
Loss in value of land under wires in easement area.	$27,870	8.38%
Severance/ injurious affection to remaining property (the balance lands).	$301,791	0.23%
Total Compensation.	**$472,561**	**13.12%**
Disturbance items are not noted in the judgement		

Summation or Piecemeal Approach in *Kater* (1993) Judgement
Source: Authors
Table 4

The judgment in *Kater* records compensation for the land occupied at only 0.23% of the value of the property, accentuating the importance of including loss in value to the balance land through severance and injurious affection (as illustrated by Figure 1).



Percentages of Compensation in *Kater* (1993) Judgement
Source: Authors
Figure 1

As in the *Kater* case, the problem in assessing compensation for CSG occupation through the *before and after* approach is that it can be difficult to identify sales evidence that supports both before and after valuations.

However, it is possible to adapt the approach. In *Brancatisano & Anor v The Minister* 1967, the court used a percentage reduction to obtain the "after" valuation and this was done in *Smith v. Cameron (1986),* where the court applied reductions for improvements (20%) and land (10%). A

like approach was taken in *Sullivan and Sullivan v Oil Company of Australia Limited and Santos Petroleum Operations Pty Ltd, [2003] QLRT, 40* (where the court adopted a discount of $40 per hectare on the freehold land value). Adaptations such as these produce approaches that are patently similar to the piecemeal method and in *Zimmerebner v Hawkins and Anor (1999) 20 QLCR 71, 22* the court observed the close association between the two approaches. Further, the court went on to propose that the imperative is to assess the allowance that the hypothetically prudent purchaser would make for the occupation.

Evaluating the NSW Approaches

The question must be asked, how well do existing approaches address the harms inflicted by CSG occupation? Table 5 compares the outcomes of the NSW compensation approaches with those of the traditional "*piecemeal"* and "*before and after*" approaches using the list of harms in Table 1.

	Formula as per *AGL (1986)*	**Carrying capacity** as per *Moolarben (2008)*	**Rate square metre** as per *Halfpenny (2003),* or rate per well	**Piecemeal** as per *Kater (1993*) *and* ***before and after*** *as per Wills v Minerva Coal (1998)*
Land Taken	May be included.	Treats value for grazing only.	Included	Included
Severance	Not included	Included in *Moolarben* – overlooked in *Newbridge Slate* and *Halfpenny.*	Not included.	Included
Injurious affection	Included.	Not included	Not included	Included
Disturbance	Legal and other fees plus repair costs are usually added "at cost".			

Comparing NSW Mining Approaches With "Piecemeal"
Source: Authors
Table 5

Valuation approaches in NSW (for example *Halfpenny 2003* and *Newbridge Slate Pty Ltd* 1997) have frequently ignored diminution in value to the balance land through severance and injurious affection. On the other hand, both the "*piecemeal"* and the "*before and after*" methods address the issue (which is often important in cases of partial occupation or acquisition). The use of "*piecemeal"* and the "*before and after*" methods is strongly supported in the Queensland mining cases.

Towards a Theory for Assessing Compensation

The judgement in the Queensland mining case of *Smith v. Cameron (1986) 11 QLCR 64* contained the following view of acquisition of land for mining purposes.

> *...(ii) That the use of land for mining purposes is in the nature of a compulsory acquisition of land for a limited period.*

(iii) That the various principles and practices of valuation applied in determining compensation for the taking of limited rights over land for public purposes are applicable in the assessment of compensation.
(iv) That the test in assessing compensation is the attitude of the hypothetical prudent purchaser and the extent to which in the opinion of such a person the owner's land has suffered diminution in the value of his property resulting from the mining operations on his land and the creation of the encumbrance including where appropriate severance and injurious affection damage.

The court went on to state:

(vi) That each case will depend on its own facts and circumstances but either the "before and after" method of valuation or piecemeal assessment is open to the valuer.

As indicated in *Smith v. Cameron (op cit),* valuers and courts are free to adopt the methods most suited to specific compensation problems. Queensland approaches utilise conventional valuation techniques of "*before and after*" and "*piecemeal*" to assess losses and these techniques are well suited to consideration of losses to balance lands. This theory has been applied to assessment of compensation for a range of partial occupations and properties and uses methods based upon rural property characteristics and property markets. The *before and after* and *piecemeal methods* have been subjected to the scrutiny of courts in a range of valuation settings.

However, as noted above, due to the dearth of market evidence in NSW to support both "before" and "after" values, the piecemeal approach is likely to have the greatest utility in the present NSW property market. It has the advantage of having been tested in a range of valuation and compensation settings and the pros and cons of the method are comprehensively disclosed in the literature.

CONCLUSIONS

Accordingly, the piecemeal approach to valuation should make a significant contribution to the valuation of compensation for CSG occupation. However, it needs to be adapted to cater for the uneven nature of nuisance and the fact that the acquisition is not permanent. The harms occurring throughout the project fall into the traditional valuation headings of:

- valuation of land occupied;
- loss in value to balance lands (through severance and injurious affection);
- disturbance.

To take account of the fluctuating harms, the compensation awards in problems such as the one in *Halfpenny* could be structured so as to compensate the various harms via a piecemeal approach which calculates an annual sum (as in *Canadian Natural Resources Limited, V Babb and Ors. 2013)* to react to the following.

- increased land occupied and nuisances during establishment;
- uncertain term of occupation;
- the nuisances caused by maintenance programs;
- potential variation of the project.

Due to the lack of market evidence relating to land affected by this new mining activity, ongoing research of potential stigma arising after abandonment and plugging of wells is warranted.

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